



DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648- XB208]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Army Corps of Engineers Debris Dock Replacement Project, Sausalito, California

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; issuance of an incidental harassment authorization.

SUMMARY: In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that NMFS has issued an incidental harassment authorization (IHA) to the U.S. Army Corps of Engineers (ACOE) to incidentally harass, by Level A and Level B harassment only, marine mammals during construction activities associated with the Debris Dock Replacement Project in Sausalito, California.

DATES: This authorization is effective from September 1, 2021 through August 31, 2022.

FOR FURTHER INFORMATION CONTACT: Dwayne Meadows, Ph.D., Office of Protected Resources, NMFS, (301) 427-8401. Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>. In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the “take” of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed incidental take authorization may be provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other “means of effecting the least practicable adverse impact” on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stocks for taking for certain subsistence uses (referred to in shorthand as “mitigation”); and requirements pertaining to the mitigation, monitoring and reporting of the takings are set forth.

The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

Summary of Request

On March 17, 2021, NMFS received an application from ACOE requesting an IHA to take small numbers of seven species of marine mammals incidental to pile driving associated with the Debris Dock Replacement Project. The application was deemed adequate and complete on May 20, 2021. The ACOE’s request is for take of a small number of these species by Level A or Level B harassment. Neither the ACOE nor

NMFS expects serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

Description of the Specified Activity

Overview

The purpose of the project is to replace the existing decaying dock and other onshore infrastructure used to move marine debris collected from San Francisco Bay onto land for disposal. The existing dock will be removed and replaced. The work will involve impact hammering 31 24-inch diameter concrete deck support piles and 17 14-inch diameter timber fender piles for the replacement dock and removal of the decayed dock by cutting or otherwise removing 31 18-inch diameter concrete deck support piles and 17 14-inch diameter timber fender piles. The ACOE recently informed us that three of the 24-inch diameter concrete piles may be replaced with 18-inch diameter concrete piles, but we analyzed the more conservative case of all 24-inch diameter concrete piles. This construction work will take no more than 26 days of in-water pile work. A detailed description of the planned project is provided in the **Federal Register** notice for the proposed IHA (86 FR 28768; May 28, 2021). Since that time, no changes have been made to the planned activities. Therefore, a detailed description is not provided here. Please refer to that **Federal Register** notice for the description of the specific activity.

The pile driving/removal can result in take of marine mammals from sound in the water which results in behavioral harassment or auditory injury.

In summary, the project period includes 10 days of pile removal and 16 days of pile installation activities for which incidental take authorization is requested.

Table 1. Summary of Pile Driving and Removal Activities

Method	Pile Type	Number of Piles	Minutes/ Strikes per pile	Piles per Day	Duration (days)
Cutting	18-inch concrete	31	5 min	10	7

Cutting	14-inch timber	17	5 min	10	3
Impact Driving	24-inch concrete	31	1000 strikes	10	10
Impact Driving	14-inch timber	17	1000 strikes	10	6
Totals		96			26

Mitigation, monitoring, and reporting measures are described in detail later in this document (please see **Mitigation** and **Monitoring and Reporting**).

Comments and Responses

A notice of NMFS's proposal to issue an IHA to the ACOE was published in the **Federal Register** on May 28, 2021 (86 FR 28768). That notice described, in detail, the ACOE's activity, the marine mammal species that may be affected by the activity, and the anticipated effects on marine mammals. During the 30-day public comment period, NMFS received public comment from one commenter. The U.S. Geological Survey noted they have "no comment at this time".

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the potentially affected species. Additional information regarding population trends and threats may be found in NMFS's Stock Assessment Reports (SARs; <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments>) and more general information about these species (e.g., physical and behavioral descriptions) may be found on NMFS's website (<https://www.fisheries.noaa.gov/find-species>).

Table 2 lists all species with expected potential for occurrence in the project area in San Francisco Bay and summarizes information related to the population or stock, including regulatory status under the MMPA and Endangered Species Act (ESA) and potential biological removal (PBR), where known. For taxonomy, we follow Committee

on Taxonomy (2020). PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS's SARs). While no mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS's stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS's U.S. Pacific SARs and draft SARs (*e.g.*, Caretta *et al.*, 2020a and b).

Table 2. Species That Spatially Co-occur with the Activity to the Degree That Take Is Reasonably Likely to Occur

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N) ¹	Stock abundance (CV, N _{min} , most recent abundance survey) ²	PBR	Annual M/SI ³
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)						
Family Eschrichtiidae						
Gray Whale	<i>Eschrichtius robustus</i>	Eastern North Pacific	-, -, N	26,960 (0.05, 25,849, 2016)	801	138
Order Cetartiodactyla – Cetacea – Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae						
Bottlenose Dolphin	<i>Tursiops truncatus</i>	California Coastal	-, -, N	453 (0.06, 346, 2011)	2.7	>2.0
Family Phocoenidae (porpoises)						
Harbor porpoise	<i>Phocoena phocoena</i>	San Francisco/Russian River	-, -, N	9,886 (0.51, 2019)	66	0
Order Carnivora – Superfamily Pinnipedia						
Family Otariidae (eared seals and sea lions)						

California Sea Lion	<i>Zalophus californianus</i>	United States	-, -, N	257,606 (N/A, 233,515, 2014)	14,011	>321
Northern fur seal	<i>Callorhinus ursinus</i>	California	-, D, N	14,050 (N/A, 7,524, 2013)	451	1.8
		Eastern North Pacific	-, D, N	620,660 (0.2, 525,333, 2016)	11,295	399
Family Phocidae (earless seals)						
Northern elephant seal	<i>Mirounga angustirostris</i>	California Breeding	-, -, N	179,000 (N/A, 81,368, 2010)	4,882	8.8
Harbor seal	<i>Phoca vitulina</i>	California	-, -, N	30,968 (N/A, 27,348, 2012)	1,641	43

1 - Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

2- NMFS marine mammal stock assessment reports online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports>. CV is coefficient of variation; Nmin is the minimum estimate of stock abundance.

3 - These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (e.g., commercial fisheries, ship strike). Annual Mortality/ Serious Injury (M/SI) often cannot be determined precisely and is in some cases presented as a minimum value or range. A CV associated with estimated mortality due to commercial fisheries is presented in some cases.

Harbor seal, California sea lion, bottlenose dolphin and Harbor porpoise spatially co-occur with the activity to the degree that take is reasonably likely to occur, and we have proposed authorizing take of these species. For gray whale, northern fur seal and northern elephant seal, occurrence is such that take is possible, and we have proposed authorizing take of these species also.

A detailed description of the of the species likely to be affected by the project, including brief introductions to the species and relevant stocks as well as available information regarding population trends and threats, and information regarding local occurrence, were provided in the Federal Register notice for the proposed IHA (86 FR 28768; May 28, 2021); since that time, we are not aware of any changes in the status of these species and stocks; therefore, detailed descriptions are not provided here. Please refer to that **Federal Register** notice for these descriptions. Please also refer to NMFS' website (<https://www.fisheries.noaa.gov/find-species>) for generalized species accounts.

Potential Effects of Specified Activities on Marine Mammals and their Habitat

The effects of underwater noise from the ACOE's construction activities have the potential to result in behavioral harassment of marine mammals in the vicinity of the survey area. The notice of proposed IHA (86 FR 28768; May 28, 2021) included a discussion of the effects of anthropogenic noise on marine mammals and the potential effects of underwater noise from the ACOE's construction on marine mammals and their habitat. That information and analysis is incorporated by reference into this final IHA determination and is not repeated here; please refer to the notice of proposed IHA (86 FR 28768; May 28, 2021).

Estimated Take

This section provides an estimate of the number of incidental takes authorized through this IHA, which will inform both NMFS' consideration of "small numbers" and the negligible impact determination.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines "harassment" as any act of pursuit, torment, or annoyance, which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Authorized takes would primarily be by Level B harassment, as use of the acoustic source (*i.e.*, vibratory or impact pile driving) has the potential to result in disruption of behavioral patterns for individual marine mammals. There is also some potential for auditory injury (Level A harassment) to result for pinnipeds and harbor porpoise because predicted auditory injury zones are larger. The mitigation and

monitoring measures are expected to minimize the severity of the taking to the extent practicable.

As described previously, no mortality is anticipated or authorized for this activity. Below we describe how the take is estimated.

Generally speaking, we estimate take by considering: (1) acoustic thresholds above which marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) the number of days of activities. We note that while these basic factors can contribute to a basic calculation to provide an initial prediction of takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.*, previous monitoring results or average group size). Due to the lack of marine mammal density, NMFS relied on local occurrence data and group size to estimate take for some species. Below, we describe the factors considered here in more detail and present the proposed take estimate.

Acoustic Thresholds

NMFS recommends the use of acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur PTS of some degree (equated to Level A harassment).

Level B Harassment for non-explosive sources – Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (*e.g.*, frequency, predictability, duty cycle), the environment (*e.g.*, bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.*, 2007, Ellison *et al.*, 2012). Based on what the available science

indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals are likely to be behaviorally harassed in a manner we consider Level B harassment when exposed to underwater anthropogenic noise above received levels of 120 dB re 1 microPascal (μPa) (root mean square (rms)) for continuous (e.g., vibratory pile-driving) and above 160 dB re 1 μPa (rms) for non-explosive impulsive (e.g., impact pile driving) or intermittent (e.g., scientific sonar) sources.

The ACOE's proposed activity includes the use of continuous (underwater chainsaw and pile clippers) and impulsive (impact pile-driving) sources, and therefore the 120 and 160 dB re 1 μPa (rms) thresholds are applicable.

Level A harassment for non-explosive sources - NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (Technical Guidance, 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). The ACOE's activity includes the use of impulsive (impact pile-driving) and non-impulsive (pile cutting methods) sources.

These thresholds are provided in Table 3. The references, analysis, and methodology used in the development of the thresholds are described in NMFS 2018 Technical Guidance, which may be accessed at

<https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance>.

Table 3. Thresholds Identifying the Onset of Permanent Threshold Shift

Hearing Group	PTS Onset Acoustic Thresholds* (Received Level)	
	Impulsive	Non-impulsive

Low-Frequency (LF) Cetaceans	<i>Cell 1</i> $L_{pk,flat}$: 219 dB $L_{E,LF,24h}$: 183 dB	<i>Cell 2</i> $L_{E,LF,24h}$: 199 dB
Mid-Frequency (MF) Cetaceans	<i>Cell 3</i> $L_{pk,flat}$: 230 dB $L_{E,MF,24h}$: 185 dB	<i>Cell 4</i> $L_{E,MF,24h}$: 198 dB
High-Frequency (HF) Cetaceans	<i>Cell 5</i> $L_{pk,flat}$: 202 dB $L_{E,HF,24h}$: 155 dB	<i>Cell 6</i> $L_{E,HF,24h}$: 173 dB
Phocid Pinnipeds (PW) (Underwater)	<i>Cell 7</i> $L_{pk,flat}$: 218 dB $L_{E,PW,24h}$: 185 dB	<i>Cell 8</i> $L_{E,PW,24h}$: 201 dB
Otariid Pinnipeds (OW) (Underwater)	<i>Cell 9</i> $L_{pk,flat}$: 232 dB $L_{E,OW,24h}$: 203 dB	<i>Cell 10</i> $L_{E,OW,24h}$: 219 dB
<p>* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.</p> <p><u>Note:</u> Peak sound pressure (L_{pk}) has a reference value of 1 μPa, and cumulative sound exposure level (L_E) has a reference value of 1 μPa²s. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript “flat” is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (<i>i.e.</i>, varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.</p>		

Ensonified Area

Here, we describe operational and environmental parameters of the activity that will feed into identifying the area ensonified above the acoustic thresholds, which include source levels and transmission loss coefficient.

The sound field in the project area is the existing background noise plus additional construction noise from the proposed project. Marine mammals are expected to be affected via sound generated by the primary components of the project (*i.e.*, impact pile driving, pile clippers and underwater chainsaws).

In order to calculate distances to the Level A harassment and Level B harassment sound thresholds for the methods and piles being used in this project, NMFS used acoustic monitoring data from other locations to develop source levels for the various pile

types, sizes and methods (see Table 4). Data for the pile clippers and underwater chainsaws come from data gathered at U.S. Navy projects in San Diego Bay (NAVFAC SW, 2020), the source levels used are from the averages of the maximum source levels measured, a somewhat more conservative measure than the median sound levels we typically use. The source level for an underwater chainsaw is 150 dB RMS and the source level for a large pile clipper is 161 dB RMS (NAVFAC SW, 2020). Because the ACOE's as yet unhired contractor has not decided which of the various pile removal methods it will use, we only use a worst-case scenario of operation using the loudest sound producing method (large pile clippers) to consider the largest possible harassment zones and estimated take.

Table 4. Project Sound Source Levels

Method	Pile Type	Estimated Noise Level	Source
Cutting	18-inch concrete	161 dB RMS	NAVFAC SW 2020
Cutting	14-inch timber	161 dB RMS	NAVFAC SW 2020
Impact Driving	24-inch concrete	159 dB SEL 184 dB Peak	Illingworth and Rodkin, Inc., 2019
Impact Driving	14-inch timber	155 dB SEL 175 dB Peak	Table I.2-3 (CalTrans 2015)

Note: SEL = single strike sound exposure level; dB Peak = peak sound level; RMS = root mean square. Impact driving source levels reduced by 5 dB to account for use of bubble curtain.

Level B Harassment Zones

Transmission loss (TL) is the decrease in acoustic intensity as an acoustic pressure wave propagates out from a source. TL parameters vary with frequency, temperature, sea conditions, current, source and receiver depth, water depth, water chemistry, and bottom composition and topography. The general formula for underwater TL is:

$$TL = B * \text{Log}_{10} (R1/R2), \text{ where}$$

TL = transmission loss in dB

B = transmission loss coefficient; for practical spreading equals 15

R1 = the distance of the modeled SPL from the driven pile, and

R2 = the distance from the driven pile of the initial measurement

The recommended TL coefficient for most nearshore environments is the practical spreading value of 15. This value results in an expected propagation environment that would lie between spherical and cylindrical spreading loss conditions, which is the most appropriate assumption for the ACOE's proposed activity in the absence of specific modelling.

The ACOE determined underwater noise would fall below the behavioral effects threshold of 160 dB RMS for impact driving at 22 m and the 120 dB rms threshold for pile cutting at 5,412 m. It should be noted that based on the bathymetry and geography of San Francisco Bay, sound will not reach the full distance of the Level B harassment isopleths in all directions.

Level A Harassment Zones

When the NMFS Technical Guidance (2016) was published, in recognition of the fact that ensonified area/volume could be more technically challenging to predict because of the duration component in the new thresholds, we developed a User Spreadsheet that includes tools to help predict a simple isopleth that can be used in conjunction with marine mammal density or occurrence to help predict takes. We note that because of some of the assumptions included in the methods used for these tools, we anticipate that isopleths produced are typically going to be overestimates of some degree, which may result in some degree of overestimate of take by Level A harassment. However, these tools offer the best way to predict appropriate isopleths when more sophisticated 3D modeling methods are not available, and NMFS continues to develop ways to quantitatively refine these tools, and will qualitatively address the output where appropriate. For stationary sources such as impact pile driving or removal using any of the methods discussed above, NMFS User Spreadsheet predicts the closest distance at

which, if a marine mammal remained at that distance the whole duration of the activity, it would not incur PTS. We used the User Spreadsheet to determine the Level A harassment isopleths. Inputs used in the User Spreadsheet or models are reported in Table 1 and the resulting isopleths are reported in Table 5 for each of the construction methods and pile types.

Table 5. Level A and Level B Isopleths (meters) for Each Pile Type and Method

Method	Pile Type	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocids	Otariids	Level B
Cutting	18-inch concrete	6	0.5	8.9	3.7	0.3	5412
Cutting	14-inch timber	6	0.5	8.9	3.7	0.3	5412
Impact Driving	24-inch concrete	116.4	4.1	138.7	62.3	4.5	22
Impact Driving	14-inch timber	63	2.2	75.1	33.7	2.5	22

Marine Mammal Occurrence and Take Calculation and Estimation

In this section we provide the information about the presence, density, or group dynamics of marine mammals that will inform the take calculations. Here we describe how the information provided above is brought together to produce a quantitative take estimate.

Bottlenose Dolphin

Density data for this species in the project vicinity do not exist. San Francisco Oakland Bay Bridge (SFOBB) project monitoring showed two observations of this species over 6 days of monitoring in 2017 (CalTrans 2018). One common bottlenose dolphin is sighted with regularity near Alameda (GGCR 2016). Based on the regularity of the sighting in Alameda and the SFOBB observations of approximately 0.33 dolphin a day, we authorize the Level B harassment take equivalent to 0.33 dolphins per day for the 26 proposed days of the project, or 9 common bottlenose dolphin (Table 6). Because the Level A harassment zones are relatively small and we believe the Protected Species

Observer (PSO) will be able to effectively monitor the Level A harassment zones, we do not authorize take by Level A harassment of bottlenose dolphins.

Harbor Porpoise

Density data for this species from SFOBB monitoring was 0.17/km² (CalTrans 2018). Based on the different pile types and methods there are three different sized ensonified areas to be considered to estimate Level B harassment take (Table 8). Multiplication of the above density times the corresponding ensonified area and duration, summing the results for the three methods, and subtracting the overlap of Level A take (below) to avoid double-counting of take, leads to authorized Level B harassment take of 21 harbor porpoise (Table 6).

Similarly, calculating expected Level A harassment take as density times the corresponding Level A harassment ensonified area and duration for each method results in an estimate that less than one harbor porpoise may enter a Level A harassment zone during the project (see Table 14 of application). Given the relatively high density and larger size of the Level A isopleths for harbor porpoises (Table 5, high-frequency cetaceans) we consider Level A harassment take is a possibility. However, we recognize that harbor porpoises travel in groups of up to 10 individuals and can be quick and somewhat cryptic, so there is potential that underwater mammals may go undetected before spotted in the Level A harassment and shutdown zone. Based on this observation we authorize Level A harassment take of 2 harbor porpoise.

California Sea Lion

Density data for this species from SFOBB monitoring was 0.16/km² (CalTrans 2018). Based on the different pile types and methods there are three different sized ensonified areas to be considered to estimate Level B harassment take (Table 7). Multiplication of the above density times the corresponding ensonified area and duration, and summing the results for the three methods, and subtracting the overlap of Level A

take (below) to avoid double-counting of take, leads to authorized Level B harassment take of 20 California sea lions (Table 6).

Similarly, calculating expected Level A harassment take as density times the corresponding Level A harassment ensounded area and duration for each method results in an estimate that less than one California sea lion will enter a Level A harassment zone (see Table 13 of application). Given the relatively high density and behavior of California sea lions we consider Level A harassment take is a possibility. Based on this observation we authorize Level A harassment take of 2 California sea lions.

Northern Fur Seal

Density data for this species in the project vicinity do not exist. SFOBB monitoring showed no observations of this species (CalTrans 2018). None were observed for the Treasure Island Ferry Dock project in 2019 (Matt Osowski, personal communication). The Marine Mammal Center rescues about five northern fur seals in a year, and they occasionally rescue them from Yerba Buena Island and Treasure Island (TMMC, 2019). To be conservative we authorize Level B harassment take of three northern fur seals. Because the Level A harassment zones are relatively small and we believe the Protected Species Observer (PSO) will be able to effectively monitor the Level A harassment zones, and the species is rare, we do not authorize take by Level A harassment of northern fur seals.

Northern Elephant Seal

Density data for this species in the project vicinity do not exist. SFOBB monitoring showed no observations of this species (CalTrans 2018). None were observed for the Treasure Island Ferry Dock project in 2019 (Matt Osowski, personal communication). Out of the approximately 100 annual northern elephant seal strandings in San Francisco Bay, approximately 10 individuals strand nearby at Yerba Buena or Treasure Islands each year (TMMC, 2020). Therefore, we authorize the Level B

harassment take of 5 northern elephant seals. Because the Level A harassment zones are relatively small and we believe the PSO will be able to effectively monitor the Level A harassment zones, and the species is rare, we do not authorize take by Level A harassment of northern elephant seals.

Harbor Seal

Density data for this species from SFOBB monitoring was 3.92/km² (CalTrans 2018). Based on the different pile types and methods there are three different sized ensonified areas to be considered to estimate Level B harassment take (Table 7). Multiplication of the above density times the corresponding ensonified area and duration, summing the results for the three methods, and subtracting the overlap of Level A take (below) to avoid double-counting of take, leads to authorized Level B harassment take of 527 harbor seals (Table 6).

Similarly, calculating expected Level A harassment take as density times the corresponding Level A harassment ensonified area and duration for each method results in an estimate that less than one harbor seal may enter a Level A harassment zone during the project (see Table 12 of application). Given the relatively high density and size of the Level A isopleths for harbor seals (Table 5, phocid pinnipeds) we consider Level A harassment take is a possibility. We recognize that harbor seals can occur in moderate and rarely large size groups and can be quick and somewhat cryptic, so there is potential that underwater mammals may go undetected before spotted in the Level A harassment and shutdown zone. Based on this observation we authorize Level A harassment take of 2 harbor seals.

Gray Whale

Density data for this species in the project vicinity do not exist. SFOBB monitoring showed no observations of this species (CalTrans 2018). None were observed for the Treasure Island Ferry Dock project in 2019 (Matt Osowski, personal

communication). Approximately 12 gray whales were stranded in San Francisco Bay from January to May of 2019 (TMMC, 2019) and four stranded in the vicinity on one week in 2021 (<https://www.washingtonpost.com/science/2021/04/11/whales-sf-bay-beaches/>). Because recent observations are not well understood, Sausalito sits near the entrance to the bay, and as a conservative measure, we authorize Level B harassment take of 2 gray whales. Because the Level A harassment zones are relatively small and we believe the PSO will be able to effectively monitor the Level A harassment zones, and the species is rare, we do not authorize take by Level A harassment of gray whales.

Table 6. Authorized Amount of Taking, by Level A Harassment and Level B Harassment, by Species and Stock and Percent of Take by Stock

Common name	Scientific name	Stock	Level A harassment	Level B harassment	Percent of stock
Harbor seal	(<i>Phoca vitulina</i>)	California Stock	2	527	1.7
Harbor porpoise	(<i>Phocoena phocoena</i>)	San Francisco – Russian River Stock	2	21	0.3
California sea lion	(<i>Zalophus californianus</i>)	U.S. Stock	2	20	<0.1
Gray whale	(<i>Eschrichtius robustus</i>)	Eastern North Pacific Stock	0	2	<0.1
Bottlenose dolphin	(<i>Tursiops truncatus</i>)	California Coastal Stock	0	9	2
Northern elephant seal	(<i>Mirounga angustirostris</i>)	California Breeding Stock	0	5	<0.1
Northern fur seal	(<i>Callorhinus ursinus</i>)	California and Eastern North Pacific Stocks	0	3	<0.1

Table 7. Calculations to Estimate Level B Harassment Take

		Harbor Seal	Sea Lion	Harbor Porpoise
SFOBB Species density (animals/square kilometer (km ²))		3.96	0.16	0.17
Days of Pile Driving/Cutting	24-inch Concrete	10	10	10
	14-inch Timber	6	6	6
	Pile Cutting	10	10	10
Area of Isopleth in km ²	24-inch Concrete	0.00151	0.00151	0.00151
	14-inch Timber	0.00151	0.00151	0.00151
	Pile Cutting	13.3456	13.3456	13.3456
Per day take	24-inch Concrete	0.006	0.0002	0.0003

Level B	14-inch Timber	0.006	0.0002	0.0003
	Pile Cutting	52.8486	2.1353	2.2688
Total Level B Take Calculated		528.58	21.36	22.69
Total Level B Take Estimated		529	22	23

Mitigation

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock for taking for certain subsistence uses (latter not applicable for this action). NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting the activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, we carefully consider two primary factors:

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (probability implemented as planned); and

(2) The practicability of the measures for applicant implementation, which may consider such things as cost, impact on operations, and, in the case of a military readiness activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

The following mitigation measures are in the IHA:

- Avoid direct physical interaction with marine mammals during construction activity. If a marine mammal comes within 10 m of such activity, operations must cease and vessels must reduce speed to the minimum level required to maintain steerage and safe working conditions;
- Conduct training between construction supervisors and crews and the marine mammal monitoring team and relevant ACOE staff prior to the start of all pile driving activity and when new personnel join the work, so that responsibilities, communication procedures, monitoring protocols, and operational procedures are clearly understood;
- Pile driving activity must be halted upon observation of either a species for which incidental take is not authorized or a species for which incidental take has been authorized but the authorized number of takes has been met, entering or within the harassment zone;
- The ACOE will establish and implement the shutdown zones indicated in Table 9. The purpose of a shutdown zone is generally to define an area within which shutdown of the activity would occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area). Shutdown zones typically vary based on the activity type and marine mammal hearing group. The ACOE wishes to simplify implementation of the relatively small shutdown zones and has proposed using a single shutdown zone distance for each activity rather than separate zones for each hearing group as we minimally require typically. Therefore the shutdown zones in Table 8 are

based on the largest possible Level A harassment zones calculated from the isopleths in Table 6.

- Employ PSOs and establish monitoring locations as described in the application and Section 5 of the IHA. The Holder must monitor the project area to the maximum extent possible based on the required number of PSOs, required monitoring locations, and environmental conditions. For all pile driving and removal one PSO must be used. The PSO will be stationed as close to the activity as possible;

- The placement of the PSO during all pile driving and removal and drilling activities will ensure that the entire shutdown zone is visible during pile installation. Should environmental conditions deteriorate such that marine mammals within the entire shutdown zone will not be visible (*e.g.*, fog, heavy rain), pile driving and removal must be delayed until the PSO is confident marine mammals within the shutdown zone could be detected;

- Monitoring must take place from 30 minutes prior to initiation of pile driving activity through 30 minutes post-completion of pile driving activity. Pre-start clearance monitoring must be conducted during periods of visibility sufficient for the lead PSO to determine the shutdown zones clear of marine mammals. Pile driving may commence following 30 minutes of observation when the determination is made;

- If pile driving is delayed or halted due to the presence of a marine mammal, the activity may not commence or resume until either the animal has voluntarily exited and been visually confirmed beyond the shutdown zone or 15 minutes have passed without re-detection of the animal;

- The ACOE must use soft start techniques when impact pile driving. Soft start requires contractors to provide an initial set of three strikes at reduced energy, followed by a 30-second waiting period, then two subsequent reduced-energy strike sets.

A soft start must be implemented at the start of each day's impact pile driving and at any time following cessation of impact pile driving for a period of 30 minutes or longer;

- Use a bubble curtain during impact pile driving and ensure that it is operated as necessary to achieve optimal performance, and that no reduction in performance may be attributable to faulty deployment. At a minimum, the ACOE must adhere to the following performance standards: The bubble curtain must distribute air bubbles around 100 percent of the piling circumference for the full depth of the water column. The lowest bubble ring must be in contact with the substrate for the full circumference of the ring, and the weights attached to the bottom ring shall ensure 100 percent substrate contact. No parts of the ring or other objects shall prevent full substrate contact. Air flow to the bubblers must be balanced around the circumference of the pile.

Table 8. Shutdown Zones (meters) for Each Pile Type and Method

Pile size, type, and method	Shutdown zone
24-inch concrete, impact	140
14-inch timber, impact	80
14 and 18-inch pile cutting	10

Based on our evaluation of the applicant's proposed measures, as well as other measures considered by NMFS, NMFS has determined that the mitigation measures provide the means effecting the least practicable impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Monitoring and Reporting

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the

necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the proposed action area. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density);
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas);
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors;
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks;
- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat); and
- Mitigation and monitoring effectiveness.

Visual Monitoring

- Monitoring must be conducted by qualified, NMFS-approved PSOs, in accordance with the following: PSOs must be independent (*i.e.*, not construction

personnel) and have no other assigned tasks during monitoring periods. At least one PSO must have prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization. Other PSOs may substitute other relevant experience, education (degree in biological science or related field), or training. PSOs must be approved by NMFS prior to beginning any activity subject to this IHA.

- PSOs must record all observations of marine mammals as described in the Section 5 of the IHA, regardless of distance from the pile being driven. PSOs shall document any behavioral reactions in concert with distance from piles being driven or removed;

PSOs must have the following additional qualifications:

- Ability to conduct field observations and collect data according to assigned protocols;
- Experience or training in the field identification of marine mammals, including the identification of behaviors;
- Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations;
- Writing skills sufficient to prepare a report of observations including but not limited to the number and species of marine mammals observed; dates and times when in-water construction activities were conducted; dates, times, and reason for implementation of mitigation (or why mitigation was not implemented when required); and marine mammal behavior; and
- Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary;

- The ACOE must establish the following monitoring locations. For all pile driving and cutting activities, a minimum of one PSO must be assigned to the active pile driving or cutting location to monitor the shutdown zones and as much of the Level B harassment zones as possible.

Reporting

A draft marine mammal monitoring report will be submitted to NMFS within 90 days after the completion of pile driving and removal activities, or 60 days prior to a requested date of issuance of any future IHAs for projects at the same location, whichever comes first. The report will include an overall description of work completed, a narrative regarding marine mammal sightings, and associated PSO data sheets.

Specifically, the report must include:

- Dates and times (begin and end) of all marine mammal monitoring;
- Construction activities occurring during each daily observation period, including the number and type of piles driven or removed and by what method (*i.e.*, impact or cutting) and the total equipment duration for cutting for each pile or total number of strikes for each pile (impact driving);
- PSO locations during marine mammal monitoring;
- Environmental conditions during monitoring periods (at beginning and end of PSO shift and whenever conditions change significantly), including Beaufort sea state and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon, and estimated observable distance;
- Upon observation of a marine mammal, the following information: Name of PSO who sighted the animal(s) and PSO location and activity at time of sighting; Time of sighting; Identification of the animal(s) (*e.g.*, genus/species, lowest possible taxonomic level, or unidentified), PSO confidence in identification, and the composition of the group if there is a mix of species; Distance and bearing of each

marine mammal observed relative to the pile being driven for each sighting (if pile driving was occurring at time of sighting); Estimated number of animals (min/max/best estimate); Estimated number of animals by cohort (adults, juveniles, neonates, group composition, etc.); Animal's closest point of approach and estimated time spent within the harassment zone; Description of any marine mammal behavioral observations (*e.g.*, observed behaviors such as feeding or traveling), including an assessment of behavioral responses thought to have resulted from the activity (*e.g.*, no response or changes in behavioral state such as ceasing feeding, changing direction, flushing, or breaching);

- Number of marine mammals detected within the harassment zones, by species; and
- Detailed information about any implementation of any mitigation triggered (*e.g.*, shutdowns and delays), a description of specific actions that ensued, and resulting changes in behavior of the animal(s), if any.

If no comments are received from NMFS within 30 days, the draft final report will constitute the final report. If comments are received, a final report addressing NMFS comments must be submitted within 30 days after receipt of comments.

Reporting Injured or Dead Marine Mammals

In the event that personnel involved in the construction activities discover an injured or dead marine mammal, the IHA-holder must immediately cease the specified activities and report the incident to the Office of Protected Resources (OPR) (PR.ITP.MonitoringReports@noaa.gov), NMFS and to West Coast Regional Stranding Coordinator as soon as feasible. If the death or injury was clearly caused by the specified activity, the ACOE must immediately cease the specified activities until NMFS is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of the IHA. The IHA-holder must

not resume their activities until notified by NMFS. The report must include the following information:

- Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
- Species identification (if known) or description of the animal(s) involved;
- Condition of the animal(s) (including carcass condition if the animal is dead);
- Observed behaviors of the animal(s), if alive;
- If available, photographs or video footage of the animal(s); and
- General circumstances under which the animal was discovered.

Negligible Impact Analysis and Determination

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be “taken” through harassment, NMFS considers other factors, such as the likely nature of any responses (*e.g.*, intensity, duration), the context of any responses (*e.g.*, critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS’s implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the environmental baseline (*e.g.*,

as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

Pile driving and removal activities have the potential to disturb or displace marine mammals. Specifically, the project activities may result in take, in the form of Level A and Level B harassment from underwater sounds generated from pile driving and removal. Potential takes could occur if individuals are present in the ensonified zone when these activities are underway.

The takes from Level A and Level B harassment would be due to potential behavioral disturbance, TTS, and PTS. No mortality is anticipated given the nature of the activity and measures designed to minimize the possibility of injury to marine mammals. The potential for harassment is minimized through the construction method and the implementation of the planned mitigation measures (see **Mitigation** section).

The Level A harassment zones identified in Table 5 are based upon an animal exposed to impact pile driving multiple piles per day. Considering duration of impact driving each pile (up to 20 minutes) and breaks between pile installations (to reset equipment and move pile into place), this means an animal would have to remain within the area estimated to be ensonified above the Level A harassment threshold for multiple hours. This is highly unlikely given marine mammal movement throughout the area. If an animal was exposed to accumulated sound energy, the resulting PTS would likely be small (*e.g.*, PTS onset) at lower frequencies where pile driving energy is concentrated, and unlikely to result in impacts to individual fitness, reproduction, or survival.

The nature of the pile driving project precludes the likelihood of serious injury or mortality. For all species and stocks, take would occur within a limited, confined area (north-central San Francisco Bay including Richardson's Bay) of the stock's range. Level A and Level B harassment will be reduced to the level of least practicable adverse impact

through use of mitigation measures described herein. Further the amount of take authorized is extremely small when compared to stock abundance.

Behavioral responses of marine mammals to pile driving at the project site, if any, are expected to be mild and temporary. Marine mammals within the Level B harassment zone may not show any visual cues they are disturbed by activities (as noted during modification to the Kodiak Ferry Dock) or could become alert, avoid the area, leave the area, or display other mild responses that are not observable such as changes in vocalization patterns. Given the short duration of noise-generating activities per day and that pile driving and removal would occur across nine months, any harassment would be temporary. There are no other areas or times of known biological importance for any of the affected species.

In addition, it is unlikely that minor noise effects in a small, localized area of habitat would have any effect on the stocks' ability to recover. In combination, we believe that these factors, as well as the available body of evidence from other similar activities, demonstrate that the potential effects of the specified activities will have only minor, short-term effects on individuals. The specified activities are not expected to impact rates of recruitment or survival and will therefore not result in population-level impacts.

In summary and as described above, the following factors primarily support our determination that the impacts resulting from this activity are not expected to adversely affect the species or stock through effects on annual rates of recruitment or survival:

- No mortality is anticipated or authorized;
- Authorized Level A harassment would be very small amounts and of low degree;
- No important habitat areas have been identified within the project area;

- For all species, San Francisco Bay is a very small and peripheral part of their range’
- The ACOE would implement mitigation measures such as bubble curtains, soft-starts, and shut downs; and
- Monitoring reports from similar work in San Francisco Bay have documented little to no effect on individuals of the same species impacted by the specified activities.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the monitoring and mitigation measures, NMFS finds that the total marine mammal take from the proposed activity will have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

As noted above, only small numbers of incidental take may be authorized under section 101(a)(5)(D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. When the predicted number of individuals to be taken is fewer than one third of the species or stock abundance, the take is considered to be of small numbers. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

The amount of take NMFS authorizes is below one third of the estimated stock abundance of all species (in fact, take of individuals is less than 10 percent of the abundance of the affected stocks, see Table 6). This is likely a conservative estimate

because they assume all takes are of different individual animals which is likely not the case. Some individuals may return multiple times in a day, but PSOs would count them as separate takes if they cannot be individually identified.

Based on the analysis contained herein of the proposed activity (including the mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS finds that small numbers of marine mammals will be taken relative to the population size of the affected species or stocks.

Unmitigable Adverse Impact Analysis and Determination

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Endangered Species Act

Section 7(a)(2) of the ESA (16 U.S.C. 1531 *et seq.*) requires that each Federal agency insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. To ensure ESA compliance for the issuance of IHAs, NMFS consults internally, in this case with the West Coast Region Protected Resources Division Office, whenever we propose to authorize take for endangered or threatened species.

No incidental take of ESA-listed species is authorized or expected to result from this activity. Therefore, NMFS has determined that formal consultation under section 7 of the ESA is not required for this action.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216-6A, NMFS must

review our proposed action (*i.e.*, the issuance of an IHA) with respect to potential impacts on the human environment.

This action is consistent with categories of activities identified in Categorical Exclusion B4 (IHAs with no anticipated serious injury or mortality) of the Companion Manual for NOAA Administrative Order 216-6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, NMFS has determined that the issuance of the proposed IHA qualifies to be categorically excluded from further NEPA review.

Authorization

NMFS has issued an IHA to the ACOE for the potential harassment of small numbers of seven marine mammal species incidental to the Debris Dock Replacement project in Sausalito, CA, provided the previously mentioned mitigation, monitoring and reporting requirements are followed.

Dated: July 8, 2021.

Catherine Marzin,

Acting Director, Office of Protected Resources,

National Marine Fisheries Service.

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